

Oxytropis nana Nutt., a Wyoming endemic collected by Thomas Nuttall on his journey across Wyoming in 1834

WYOMING NATIVE PLANT SOCIETY
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Treasurer's Report: The balance as of the last newsletter was $300.60. Deposits = $88.00; Cost of newsletter 3(1) = $29.10; New balance = $359.50. New members include William Reiners of Laramie and Tom Wolf of Ft. Collins. VW

Final EIS for the MX: During the interval from the Draft EIS to the Final EIS release in February, the U. S. Air Force made alternative agreements with the U. S. Fish and Wildlife Service to avoid portions of the Colorado Butterfly Plant habitat. A steel span bridge will be constructed over the only portion of the habitat they intend to bisect. To monitor any decrease in number of individuals or the population in general, the Air Force is possibly going to fund a study to assess the vigor, status, and ecology of the species. Each of the comments that were sent in for the Draft EIS from the three WNPS members were responded to by the Air Force with the statement that they were going through Section 7 consultation under the Endangered Species Act in conjunction with the preparation of a biological assessment which will provide guidelines for protection of the F. E. Warren Air Force Base populations. So now we are just in a holding pattern to see what they do next. RWL

Note to Fellow Members of the Wyoming Native Plant Society: I have resigned my position with "UP WITH PEOPLE!" so that I am now eligible (according to Bob Lichvar) to join up with your outfit. Just as long as we agree that plants come before people--and that native plants come before anything else at all. The Nature Conservancy has hired me as a "protection planner" for this region. My job is to take Lichvar's data base and do something with it--specifically try to work with federal land management planners towards integrating Natural Heritage Program data into their planning process. Working with Lichvar, I will be assembling a ranked list of plants and communities of concern. Then I will hit the road, trying to reason with BLM and Forest Service planners, and trying to meet as many of you as possible as I travel around the state. If I can be of help to you or to the Society, please let me know how. You can be sure that I will be calling on you, so let's make it mutual. Tom Wolf, Protection Planner, The Nature Conservancy, 419 S. Impala #11, Fort Collins, CO 80521, (303)493-1407.

How Pristine Wyoming? -- During the summer of 1983, Bob Lichvar and I completed a vegetation inventory of known and potential black-footed ferret habitat in Wyoming. General locations of our study areas were the black-footed ferret colony west of Meeteetse; Gillies Draw southeast of Meeteetse; Bull Elk Basin north of Powell; Wasmer Flats between Evanston and Kemmerer; Horne Flats south of Medicine Bow; Larsen's Ranch north of Wamsutter; Basin Ranch at the northern edge of the Wind River Indian Reservation; and two prairie dog towns south of Laramie. This project provided an opportunity to make detailed observations of many plant communities in the western and southern portions of the state. It also opened our eyes to how drastically the white man has disturbed Wyoming's rangelands in these areas. The purpose of this article is not to criticize past land abuses, but to stress the importance of identifying and protecting remnant presettlement communities before they, too, are destroyed.

The grassy benches west of Meeteetse provide habitat for the black-footed ferret. Historical overgrazing of this area has resulted in the dominance of prairie junegrass (Koeleria macrantha). Similar disturbed grasslands are common in Washington, Oregon, and Colorado's Piceance Basin. The presence of several species of wheatgrass (Agropyron spicatum, A. smithii, A. dasystachyum), which provide minimal cover, indicates that presettlement vegetation was probably a wheatgrass grassland.

The 8 square mile Gillies Draw study area is characterized by highly dissected topography and a complex mosaic of vegetation types. It has historically been used as sheep range. The highly disturbed condition of the vegetation is evidenced by the high percent cover and density of Gardner Saltbush (Atriplex gardneri) and birdfoot sagewort (Artemisia pedatifida), the low percent cover of native grasses, and the abundance of introduced, weedy species, such as cheatgrass (Bromus tectorum), tansy mustard (Descurainia pinnata), crested and intermediate wheatgrass (Agropyron cristatum, A. intermedium), and stickseed (Lappula redowskii). Native vegetation is thought to have been a Gardner saltbush/grass type, with the predominant species being wheatgrasses (A. spicatum, A. dasystachyum), needle-and-thread (Stipa comata), and Indian ricegrass (Oryzopsis hymenoides).

Bull Elk Basin is a blight on the face of the earth. Thousands of acres here were disced (assumed during the 1930's or 1940's) and exotic grass species introduced, presumably to improve range production. This attempt at range improvement was a miserable failure, intensified over the years by overgrazing by sheep. Swales are dominated by blue grama (Bouteloua gracilis), plains prickly pear (Opuntia polyacantha), and birdfoot sagewort. Disced areas are predominantly bare ground (61 %). Species present here include Gardner saltbush, crested wheatgrass, cheatgrass, Russian wildrye (Elymus junceus), tall wheatgrass (Agropyron elongatum), tansy mustard, stickseed, pepperweed (Lepidium densiflorum), and plains prickly pear.

Wasmer Flats is dominated by an alkali sagebrush (Artemisia longiloba)/mixed grass type. Predominant grasses are bottlebrush squirreltail (Sitanion hystrix), western wheatgrass, Sandberg bluegrass (Poa sandbergii), and thickspike wheatgrass. The entire valley between Evanston and Kemmerer was sprayed sometime in the past, presumably to increase grass cover and improve range production. Grassy openings are now dominated primarily by bottlebrush squirreltail. Total live shrub density is approximately 5000 shrubs/acre, with an additional 2700 dead stumps/acre, a result of spraying of the area. Presettlement vegetation is believed to have been a much more diverse mixture of native grasses and alkali sage than occurs now.

The Horne Flats study area is used for livestock grazing. Presettlement species composition of the 4 vegetation types found here has consequently been altered, but the area is not as severely disturbed as some of the other sites we surveyed. The predominant vegetation type is thickspike wheatgrass-threadleaf sedge (Carex filifolia). Cover and density values of species such as Hood's phlox (Phlox hoodii), birdfoot sagewort, and broom snakeweed (Gutierrezia sarothrae) indicate overgrazing of the type.

Larsen's Ranch is dominated by two vegetation types, birdfoot sagewort/western wheatgrass and sagebrush. The area has historically been overgrazed. Sixty one percent of the ground cover in the sagewort/ wheatgrass type is bare ground. Additional evidence of overgrazing is species composition, low mean total plant cover, extremely low species diversity, and a high percentage cover by increaser species. Presettlement vegetation is believed to have been a mixture of sagewort, sagebrush, and native grasses of a much different species composition than is present now.

Basin Ranch, like the Meeteetse site, is predominantly a prairie junegrass grassland and presettlement vegetation is believed to be similar to the Meeteetse site. The area is grazed and sites suitable for agriculture have been converted to hay fields.

The two prairie dog towns south of Laramie have also been overgrazed by domestic livestock. They are dominated by a western wheatgrass-blue grama grassland. Important species include broom snakeweed, winterfat (Eurotia lanata), fringed sage (Artemisia frigida), Hood's phlox, and Gardner saltbush. Presettlement vegetation is presumed to be western wheatgrass.

The data we collected this summer indicate that at least parts of Wyoming are not as pristine as most of us would prefer to believe. It's time that people in Wyoming realize that for its wide-open spaces and spectacular scenery, Wyoming has been and continues losing its pristine plant communities and their intrinsic biological values. EIC

Notes on some plants occurring in the Beartooths I: The Beartooth Plateau in Park County, Wyoming is certainly one of the most well collected alpine areas in the state. A relatively steady stream of collectors have worked the Beartooth Plateau since the opening of the Red Lodge-Cooke City Highway (Beartooth Hwy.) in the 1930's. The Beartooth Plateau and environs harbor a number of rare, seldom collected, and otherwise interesting plant species that are found only here or are found here and in a few other alpine areas in the state. Since the WNPS annual meeting will be held this year in the Beartooths, it might be worthwhile to discuss beforehand the many rare and interesting plants that will be seen this summer.

Rare species that have been found in the state only on the Beartooth Plateau are Phippsia algida, Draba glabella, Rumex acetosa, and Pedicularis oederi. The first three species were collected on the plateau first by P. Johnson in 1958-59 while Pedicularis oederi was first collected on the plateau by F. W. Pennell in 1938. These three circumpolar arctic-alpine species (the Rumex is probably a widespread introduced weed) have highly disjunct distributions in the Canadian and American Rockies. Both Phippsia algida and Draba glabella are found in the Colorado Rockies. The Beartooth Plateau apparently represents the most southerly station in North America of Pedicularis oederi and perhaps of Rumex acetosa. It would not be unreasonable to expect all four of these species in suitable alpine habitats in other parts of Wyoming. Suitable alpine habitats would appear to be wet gravel with continuously percolating water for the Phippsia, wet or mesic tundra for the Pedicularis and the Rumex, and mesic tundra with perhaps some sheep dung for the Draba, since Draba glabella is purportedly strongly nitrophilous. These habitats and the dung are certainly not wanting in other Wyoming alpine areas. It is interesting to note that the Draba and the Rumex are known only from the original collections and along with Phippsia, known from only a few sites, represent three of

Wyoming's rarest plants. On the other hand, Pedicularis oederi is not uncommon on the plateau.

Of those rare arctic-alpine species which are found on the Beartooth Plateau and in a few other alpine areas in the state, we can first list the interesting quartet Juncus biglumis, J. castaneus, J. triglumis, and Carex bipartita. All four of these species are found in Colorado, and small populations recently have been found in the Bighorns, but are seemingly lacking from all other ranges in the state, except the Absarokas and the Medicine Bow. It should be noted that Juncus biglumis and Carex bipartita are both present in the Absarokas, but are "no shows" in the Medicine Bow; while J. castaneus and J. triglumis are both found in the Medicine Bow, they are absent from the Absarokas. Juncus biglumis was first collected in the state from the Beartooth Plateau by F. J. Hermann in 1955, while J. castaneus and J. triglumis were both first collected from the plateau by P. Johnson in 1959. Carex bipartita was first collected in the state from the plateau by me in 1980. These four inconspicuous, but interesting members of the Beartooth plantscape are plants of wet, poorly drained soil; all four species readily can be seen growing together in a variety of wet sites right along the Beartooth Hwy.

Festuca baffinensis, Senecio fuscatus, and Antennaria lanata constitute another interesting group of arctic-alpine species (alpine only for A. lanata) found on the Beartooth Plateau and in a few other alpine areas in the state. Senecio fuscatus and Antennaria lanata appear to be at the southernmost extensions of their North American ranges on the Beartooth Plateau and in the Absarokas (A. lanata reaches the Bighorns) and are found in the state only here. Festuca baffinensis ranges farther south to the Absarokas, the Wind Rivers, and into Colorado. Festuca baffinensis was first collected in the state from the plateau by C. L. Porter and R. Rollins in 1951. Apparently, originally identified as Festuca brachyphylla, it was later correctly identified as F. baffinensis by A. E. Porsild. Festuca baffinensis is a plant of well-drained soils and can be found on ridge tops in dry meadow-fellfield habitats on the plateau. Senecio fuscatus, first collected by A. Cronquist in 1955? and Antennaria lanata first collected in the state by C. L. Porter and R. Rollins on the plateau in 1951, are both plants of mesic to dry tundra meadows on the plateau.

Finally, we should be aware of a group of rare and interesting arctic-alpine species which has been found in the state only on the plateau and in the Wind River Mtns. This group consists of Koenigia islandica, Eriophorum callitrix, Carex misandra, and Parrya nudicaulis. The first three were first collected in the state from the plateau again by P. Johnson in 1958-60 during his studies with W. D. Billings of the vegetation of the plateau. R. Rollins and C. Munoz were the first white men to collect Parrya nudicaulis from the plateau in 1939. This interesting and showy member of the mustard family, which also occurs in Utah but not in Colorado, is found atop Beartooth Butte, a sedimentary monadnock just west of the plateau, in well-drained limestone rubble. Koenigia islandica, Eriophorum callitrix, and Carex misandra are all plants of poorly drained soils on the plateau. All have very disjunct distribution patterns in the Rockies. Koenigia islandica, one of the most minute plants in Wyoming's vascular flora, is found in and along streamlets and in open places in bogs on the plateau. This tiny annual occurs in similar situations in Colorado. Apparently, Eriophorum callitrix does not reach Colorado and the southern terminous of its range in North America is evidently in the Wind River Mtns. This conspicuous cotton sedge is found in the extensive sedge bogs on the plateau. Carex misandra, a very graceful and attractive sedge, can be seen growing on the plateau along the edges of bogs and on the better drained hummocks within these bogs.

Next time we will take a look at a number of rare or interesting non-arctic-alpine plants that occur on or near the plateau and a few remaining arctic-alpine ones. EFE

Annual Meeting: The annual meeting of the society is tentatively scheduled for August 11-13, 1984, in the Beartooth Plateau area.

North Fork Well: The Draft EIS entitled North Fork Well concerning the proposed exploratory oil well and oil field development in the North Fork Shoshone River drainage has been published. This 88 page document may be obtained from the BLM District Office, P. O. Box 119, Worland, WY 82401. Your comments urging No Action, Alternative 5, can be sent before April 16, 1984, to the above mentioned address.

The study area open to exploratory drilling and eventual development, should marketable quantities of oil be found, encompasses 39,000 acres of extremely fragile, rugged, and magnificent mountainous terrain of the Absarokas, ranging from 5,800-10,200 ft. elev. in the Shoshone National Forest, 25 miles west of Cody. Since all action alternatives (1-4) would allow development, should significant quanitities of oil be found, and since the area's capacity to function as a harmonious, living, healthy ecosystem would be seriously jeopardized or destroyed, should development occur, it is strongly urged that Alternative 5, No Action, be adopted. It should be pointed out that the type localities of two recently described Wyoming endemics, Lomatium attenuatum and Penstemon absarokensis, which are in the study area, also would be jeopardized. EFE

Some suggested scientific-natural areas for Wyoming:

SAWTOOTH PALSA

Location: one mile south of Sawtooth Mtn. on the Beartooth Plateau, Park County, T57N R104W Sec. 29 W½.

Natural Features: This treeless 40 acre site in the subalpine zone at 9700 ft. consists of a palsa (a domed peat accumulation underlain with permafrost) and thermokarst features (thaw depressions, etc.) surrounded by a sedge fen and wet meadow. Palsa and thermokarst landforms are relatively common hundreds of miles farther north in the zone of continuous permafrost, but are exceedingly rare in the conterminous United States. The palsa and thermokarst landforms in evidence at this site are believed to be unique in the lower 48 states. The vascular plant species comprising the vegetative cover of the palsa and surrounding wet areas appear to be common species.

Ownership: U. S. Forest Service.

Management and Use Concerns: Although the site when visited in 1982 did not display any untoward disturbances, peat mining, use by off road vehicles, and grazing by cattle and sheep all pose potential threats to this unique area.

References and Comments: Collins, E., 1982, Bogs and Fens in Wyoming, WNPSNL 2(3):3-4. Collins, E., et al., 1984, Description of the only Known Fen-Palsa in the 48 Conterminous United States, Arctic and Alpine Research 16:--. The existence in Wyoming of the only known palsa in the lower 48 states is remarkable. This unique and highly significant natural area is in need of protection and should be designated a Research Natural Area by the Forest Service. EFE

PREACHER ROCK BOG-SWAMP COMPLEX

Location: Immediately west of Preacher Rock at the head of Ranger Creek in the Bighorn Mtns., Sheridan County, T54N R86W Sec 31 NW¼.

Natural Features: The 20-30 acre site in the montane zone at 8200 ft. consists of willow-alder marsh, sedge fen, spruce-fir swamp forest, and Sphagnum bog. Several species of Sphagnum and other mosses dominate, along with a number of rare vascular species, Eriophorum chamissonis, Carex gynocrates, C. saxatilis, and Juncus regelii, in the interesting bog area. The swamp forest which grades into the Sphagnum bog contains populations of Ledum glandulosum, one of only two stations in the Bighorns, and Equisetum sylvaticum, the only known station in Wyoming outside the Black Hills. While the willow-alder and sedge fen communities occurring on the site are not unusual for Wyoming, the Sphagnum bog-swamp forest complex, with its uncommon assemblage of species, certainly is. Only four or five Sphagnum bogs are known to occur in the entire state.

Ownership: U. S. Forest Service.

Management and Use Concerns: The site is used by moose which I observed on the two occasions that I visited the area and by cattle which were observed in 1983, a dry year. Although perhaps not grazed by cattle during wet years, the site in 1983 was extensively trampled and closely cropped by cattle so that a number of the rare bog species were not readily observable. Since it is likely that repeated heavy use of the bog by cattle will cause its destruction, use by cattle should be regulated.

References and Comment: Collins, E., 1982, Bogs and Fens in Wyoming, WNPSNL 2(3):3-4. Evert, E., 1982 Field Work, WNPSNL 2(3):1-2. The presence in the Bighorn Mtns. of one of the few known Sphagnum bogs in the state should be recognized and this unusual natural area should be afforded the protection that it deserves. EFE

DUGOUT GULCH

Location: seven miles south of Beulah in the Black Hills, Crook County, T52N R60W Secs. 30 and 31.

Natural Features: Dugout Gulch has one of the highest concentrations of eastern deciduous and boreal forest species and plant communities in the Black Hills. Some species found here are: Rubus pubescens, Asclepias ovalifolia, Lonicera dioica, Polygala verticillata, Aster oblongifolius, Polystichum lonchitis, Halenia deflexa, Oxalis stricta, Polygala senega, Stipa spartea, Botrychium virginianum, Carex retrorsa, Festuca subulata, Maianthemum canadense, and Geum canadense. The plant communities include Ostrya virginiana, Quercus macrocarpa, Betula papyrifera, Ulmus americana and Corylus cornuta. Some or most of these species can be found in other areas in the Black Hills, but no other canyon in the Black Hills of Wyoming has all of these species in one place as does Dugout Gulch.

Ownership: U. S. Forest Service and Homestake Management and Use Concerns.

References and Comments: Memo from Barry Johnston to Spearfish District, U. S. Forest Service, 1982. R. Lichvar letter to Spearfish District, U. S. Forest Service, 1982. The significance of Dugout Gulch is as follows: 1) in Wyoming no other known site has all these unique communities and species, 2) chances of finding such a canyon in the South Dakota Black Hills to match this site is low, and 3) the western and southern extension of the species located here in conjunction with the western flora makes this a highly unusual site regionally.

Management and Use Concerns: An old primitive road does exist in the Gulch and cattle are known to graze in the bottoms. A new logging road is being proposed by the Forest Service which our society has opposed before without getting a satisfactory answer. Our interest in the Gulch is to have no further roads developed and have this site designated as a Research Natural Area. RWL

Botanical Novelties: Edward L. Greene was born in Rhode Island in 1843. Twelve years later his family moved to Illinois and shortly after to Wisconsin. There he was tutored informally by a Swedish naturalist Thure Kumlien. As a youngster Greene was independent and opinionated which carried through to his botanical years. He moved to Denver on April 8, 1870, and immediately began botanizing in the area. On June 20, 1872, he jumped off the train at the Colorado-Wyoming line south of Cheyenne for his first botanizing in Wyoming. He returned on July 1-3 for more botanizing on Sherman Hill. His "Rambles of a Botanist in Wyoming Territory" in the American Naturalist of 1874 are almost the only early discriptions of vegetation for the Cheyenne area. He described many new species including Machaeranthera linearis, Grindelia subalpina, Phlox alyssifolia, Polemonium occidentale, and Sorbus scopulina. Most were described in his own journals of Pittonia and Leaflets of Botanical Observation and Criticism. He is remembered by Chrysothamnus greenei and others. He left his herbarium to Notre Dame University with the stipulation that anyone using it would have to travel to that institution. No loans are possible.

Charles Christopher Parry was born in England in 1823 and came to America in 1832. In 1873 he was a member of the Jones Expedition which went from Green River to Yellowstone Park by way of the Owl Creek Mountains and the Shoshone River. Almost all collecting in the Owl Creeks and Absarokas except for the last 10 years or so was done by Parry on the 1873 expedition. A number of new species were discovered on the expedition including Stanleya tomentosa, Aquilegia jonesii, and Townsendia condensata. He is remembered by Primula parryi, Campanula parryi, and Townsendia parryi. A report of the expedition was provided by W. A. Jones in 1875 published by the government.

N. H. Winchell and A. B. Donaldson accompanied the Custer Expedition into the Black Hills in 1874 and made a fair collection of plants. A report of the expedition was provided by W. Ludlow in 1875 published by the government. RDD

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